


MOTOR COMPETENCIES ORIENTED PHYSICAL EDUCATION TEACHER TRAINING. PRELIMINARY RESULTS ON SELF-PERCEPTION OF TEACHING STYLES

LA FORMAZIONE DEGLI INSEGNANTI ORIENTATA ALLA DIDATTICA PER COMPETENZE. STUDIO PRELIMINARE SULL'AUTOPERCEZIONE DEGLI STILI D'INSEGNAMENTO



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ABSTRACT

The teaching of motor competencies requires the choice and interaction of different teaching styles, to promote different learning modalities. Aims of the study: a) analyze the teaching styles mainly used by PE teacher in secondary school; b) promote self-perception of teaching styles; c) compare teaching styles. The sample is 83 (F: 42; M: 41) of high school teachers. An online questionnaire was proposed in which the teacher's behavior was presented for each style. The results highlight the prevalent use of reproductions styles over production styles.

Insegnare competenze motorie richiede la scelta degli stili d'insegnamento, per promuovere diverse modalità di apprendimento. Obiettivi: a) analizzare gli stili d'insegnamento prevalentemente utilizzati dall'insegnante; b) promuovere l'autopercezione degli stili d'insegnamento; c) confrontare gli stili d'insegnamento. Il campione è di 83 (F: 42; M: 41) insegnanti della scuola secondaria di secondo grado. È stato proposto un questionario in cui è presentato il comportamento dell'insegnante per ogni stile. I risultati evidenziano l'uso prevalente degli stili di riproduzione, rispetto a quelli di produzione.

KEYWORDS

Motor Competencies, Teacher Learning, Teaching Styles. Competenze motorie, Formazione degli insegnanti, Stili di insegnamento.

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Introduction

Didactic research in PE has highlighted significant progress regarding disciplinary analysis and epistemological fields, the selection of motor tasks and organizational modalities in different educational contexts. Studies on teacher behavior (Rink, 2002) on the choices of teaching activities and modalities and, indirectly, on the learning modalities of motor competencies of children, on the contrary, would require an expansion, a comparison and contextualization, above all to evaluate effects on different factors of motor competence (Stodden et al., 2021). The need emerges to proceed for *models* and *best teaching practices* based on evidence, in order to design university and post-graduate teacher training path ways.

The teaching of motor competencies in different grades and training contexts (physical education, extra-curricular motor activities; introduction to sport), in fact, calls for a didactic planning oriented towards the analysis of the motor task and the relative adaptations, methodologies and organizational modalities, in order to:

- a) promote the person's educational process through teaching styles intentionally oriented towards favoring relationships between the person's motor, cognitive, emotional and social functions;
- b) promote the learning and development of the factors that make up motor competence (motor skills, knowledge, attitudes), their interconnections and applications;
- c) promote different modalities of learning.

The Spectrum model of teaching styles (Mosston & Ashworth, 2008), allows you to vary the teacher-student-student relationships through the choice of *reproduction* styles and *production* styles according to the educational objectives, the environments-spaces used, the adaptation to the individual differences of the students.

The choice and variation of teaching styles and the variability of practice determine the quality of the students' learning process, since they have different effects on the student's learning processes and constitute mediation effects of the educational process (Byra, 2018; Pesce et al., 2019).

The beliefs of PE teachers on the methodologies used greatly influence their behavior, the choices of activities in relation to the context and the spaces-environments in which it takes place (Kulinna & Cothran, 2003; Cothran et al., 2005). What are the proposals of physical education teachers and what are the ways in which they propose motor tasks and organizational modalities? Through the behavior of the teacher, is it possible to study, indirectly, learning mainly solicited by teacher?

Especially at school, the proposal of motor tasks, pertaining to different disciplinary context, in fact, require *didactic intentionality* to favor the mediation between

activity-teacher-environment, the development of significant learning and, in general, the quality of teaching through numerous and different educational opportunities for all students.

1. Methods and Materials

The aim of this study is to analyze PE teachers' beliefs on the spectrum of teaching styles from a national, in particular, regional perspective. The teacher's perception of the teaching styles used promotes reflective attitudes on the decisions regarding their own teaching choice and on the effects on educational process.

The sample consists of 83 (Tab. 1) high school PE teachers (F: 42; M: 41; age F.: 40.98 ± 8.42 ; M.: 43.52 ± 9.37) by Puglia Region.

Sample	N	Age	Seniority (%)			School location (%)		Academic training (%)		Tenure (%)				Higher Education (%)	
			0-4 years	5-10 years	Over 10 years	Town	Neighboring town	ISEF	Master's Degree	Government recruitment procedure	TFA	SSIS	other	yes	no
M	41	45,80 ± 12,45	32	34	34	78	22	39	61	65	18	12	5	39	61
F	42	40,43 ± 8,52	40	29	31	21	79	43	57	83	10	5	2	5	95
Overall	83	43,08 ± 10,85	36	31	33	22	78	41	59	74	14	8	4	22	78

Table 1. Sample

A randomly identified regional sample of high school students was asked for their willingness to respond to a self-report in order to plan subsequent in-service training by University.

An online questionnaire was proposed, modifying and adapting the questionnaire from SueSee et al. (2018), where teaching styles and related teacher behavior were presented. PE teachers were asked to indicate the teaching style predominantly used in the last month of teaching activity. Further clarifications were communicated by mail or by telephone. Each teaching style was defined with the corresponding didactic choice (Tab.2,3).

Reproduction Teaching Styles	Teacher behavior
Command	<i>The students simultaneously carry out motor task indicated/demonstrated by teacher, in which the duration, intensity, use of tools, interval, rhythm, organizational modalities are specified.</i>
Practice	<i>PE teacher defines the motor tasks and the organizational modalities (individual tasks, in pairs, in groups, in teams, circuits), the duration, the intensity (series-repetitions), the intervals, communicates the feedback to students who perform the proposed according to a personal rhythm.</i>
Reciprocal	<i>PE teacher selects motor tasks and presents the objectives to students and the organizational modalities (pairs). One student performs the task, while the other observes according to the criteria predefined by teacher (list of descriptors, e.g.: forward dribbling; third-half shooting in basketball; etc..) to offer immediate feedback on the performances performed. At the end, students change roles (mutual observation, observer-observed) and continue with the following activities. This experience of communicating and receiving immediate feedback on the activity and through practice, allows errors or different execution modes to be detected and compared.</i>
Self Check	<i>PE teacher selects motor tasks and designs the related verification criteria (list of descriptors/motor skills-criteria) for students. Students individually practice and check their performance using the check-list. The students perform motor task autonomously and compare the performance with the predefined criteria.</i>
	<i>PE teacher indicates different levels of executive difficulty of the task/activity through executive variants, use of</i>

Inclusion	<i>tools, etc. The students they choose the most appropriate executive difficulty level to practice on, according to their motor skills. Particular attention to tasks adapted to individual differences.</i>
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Table 2. Reproduction Teaching Styles

Production Teaching Styles	Teacher behavior
Guided Discovery	<i>PE teacher proposes a motor task and urges students to identify both different executive modalities and relationships between the variants (space-time, quantity-qualitative), the methods of using a tool; of movement within spaces of different sizes (In how many ways-variations- can forward dribble? In how many ways can jump with the rope? How can run? etc.</i>
Divergent Discovery	<i>PE teacher sets a motor task, in which open, non-predefined motor solutions are required; students perform the task using their individual repertoire of motor skills and postures; identifying different, unusual and creative answers (who can...? How can...?)</i>
Learning Designed Individual Program	<i>PE teacher decides on a disciplinary area (e.g.: team games-volleyball; gymnastics, expressiveness); the students practice in this area, organize activities and motor sequences.</i>
Learner Initiated Program	<i>Students decide the disciplinary field of interest and the motor tasks on which to practice; the teacher suggests the criteria for correct success, communicates the feedback, encourages self-assessment.</i>
Self-Teaching	<i>Students autonomously decide the disciplinary field and the motor tasks on which to practice. This style is not teacher driven. The topics to be learned or explored also concern theoretical knowledge (scientific, pedagogical assumptions, regulations, biomedical, organizational aspects, etc.).</i>

Table 3. Production Teaching Styles

Participants were asked to identify the teaching style mainly used in the last month by indicating a value (from 0 to 4), regardless of the topic covered, according to the following indicators: never (0 times a month); rarely (1-3 times a month);

sometimes (4-6 times a month); often (7-9 times a month); always almost (over 9 times a month).

2. Results

The results highlight the prevalent use of *reproduction* styles, regardless of the teacher's gender differences and this indicates specific organizational modalities of the activities, converging response modalities that influence the timing and motor learning modalities of students (Tab.4, 5). In particular, the *Command-A* style is used - frequently - by 53% of teachers and this indicates a high centrality of the teacher and imitative and reproductive execution modalities of student. 73% of teachers declare that they have *frequently* used the *Practice-B* style, while 33% the *Self Check-D* and 41% *Reciprocal-C* style.

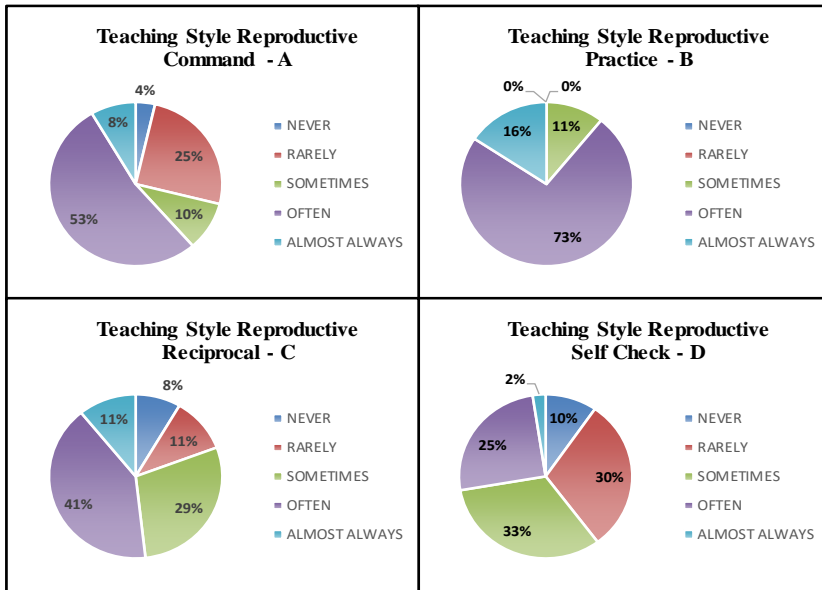
According to the *Practice-B* style, the motor tasks are chosen by teacher and favor *linear* learning modalities, oriented towards the teacher's choices and which require predefined and closed responses from student.

The answers of teachers highlight didactic scenarios with reduced opportunities for *self-check* and reflection on the modalities of execution of the motor task, on the phases of the learning process completed, on the difficulties faced, on the strengths and times.

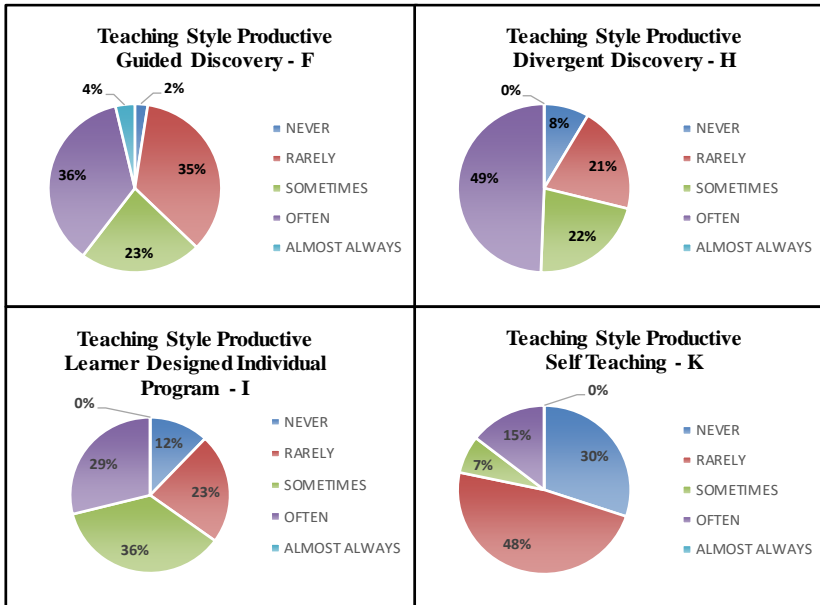
36% of teachers stated that they *frequently* proposed motor activities through the production style (*Guided Discovery-F*) and 49% that they used the *Divergent Discovery-H* style. The results show reduced opportunities for didactic proposals through production styles (<50%) oriented on the student's choices and on the process, that promote *non-linear* learning, i.e. open motor responses, autonomous, personalized, creative and original choices.

Teaching Style	Never (%)		Rarely (%)		Sometimes (%)		Often (%)		Always almost (%)	
	M	F	M	F	M	F	M	F	M	F
Command -A	2	5	27	24	10	9	51	55	10	7
Practice-B	0	0	0	0	15	7	73	74	12	19
Reciprocal-C	5	12	7	14	29	29	49	33	10	12
Self Check-D	5	14	34	26	34	31	24	26	3	3
Inclusion-E	3	9	29	17	34	31	27	36	7	7
Guided Discovery-F	0	5	32	38	22	24	41	31	5	2
Convergent Discovery-G	---	---	---	---	---	---	---	---	---	---
Divergent Discovery-H	2	14	20	22	29	14	49	50	0	0
Learner Designed Individual Program-I	12	12	20	26	27	45	41	17	0	0
Learner Initiated Program-J	2	7	22	17	42	62	34	14	0	0
Self Teaching-K	20	41	51	45	7	7	22	7	0	0

Table 4. Teaching Style Perceptions



Graphic 1. Teachers' use of reproductive teaching styles



Graphic 2. Teachers' use of productive teaching styles

Teaching Style Perceptions (Reproductive)					
Style	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Almost always (%)
Command - A	4	25	10	53	8
Practice - B	0	0	11	73	16
Reciprocal - C	8	11	29	41	11
Self Check - D	10	30	33	25	2
Inclusion - E	6	23	33	31	7

Teaching Style Perceptions (Productive)					
Style	Never (%)	Rarely (%)	Sometimes (%)	Often (%)	Almost always (%)
Guided Discovery - F	2	35	23	36	4
Convergent Discovery - G	---	---	---	---	---
Divergent Discovery - H	8	21	22	49	0
Learning Designed Individual Program - I	12	23	36	29	0
Learner Initiated Program - J	5	19	52	24	0
Self-Teaching - K	30	48	7	15	0

Table. 5 Reported Usage of Styles by Respondents

3. Discussion

The choice of communication modalities between teacher-student-student, the organization of motor activities in the gym (or other environment-space), have a decisive importance in motor learning processes and contribute to promoting, in all students, the awareness of the meanings and values present in motor and sports experience (Soini et al., 2023).

As in previous studies (Cothran et al., 2005), the data show a mainly directive behavior of teacher, on which the choice of motor task depends, the organizational modalities (paths, relays, circuits, games) and the modulation and adaptation of the factors quantity-duration-intensity-difficulty-pauses. The variability of the motor practice, i.e. the cognitive-emotional involvement is low and predefined. In fact,

Practice-B style concerns activities mainly aimed at developing physical efficiency and requires adapted motor execution and expected executive variants.

The styles of *Self Check-D* and *Reciprocal-C* declared by teachers involve the metacognitive process, i.e. the student's self-perception of the degree of mastery achieved and concern motor tasks and executive variants referring to curricular objectives. Through the criteria-skills it is avoided to compare the motor performances of a student with those of the group or with the average performance and the comparison takes place, in fact, between the motor performances performed and the "*criteria-skills*" referring to the objective. The teacher through these styles supports the student's self-assessment process and provides systematic feedback on the effectiveness of the educational choices made.

The reported choices to use production styles (36% Guided Discovery and 59% Convergent Discovery) are in accordance with the problem discovery and problem solving learning mode and the non-linear learning model (Chow et al., 2007). The non-linear didactic approach can be mediated by the teacher to direct the student's learning methods, for free exploration, for *Guided Discovery-F*, for *Divergent Discovery-G* and it also has a strong impact on self-perception and enjoyment, generating both motor executions functional to the personal repertoire of motor skills of each student and the prerequisites and interconnections for subsequent learning.

Second Schollhorn et al. (2012), in fact, the learning process determines behavioral changes when the teaching processes deviate from a linear approach by stimulating discovery and problem-solving. In particular, teaching-learning processes, instead of following a linear path (cause-effect; demonstration-performance) directed towards the goal (a skill to be learned) through numerous repetitions and corrections, should follow a non-linear, based on the variability of the proposals [different and differentiated]; on the experimentation and execution of a high number of executive variants and on their interaction; a motor task/game: how many variations? How to propose it? How to modify and adapt it?

The choice of the teaching style with which to propose an activity has a strong impact on the students' learning methods (imitation; conditioning; trial and error; intuition; understanding) and does not only concern the proposal-execution of motor or the choice of organizational methods. The teaching style goes further.

The use of *non-linear* pedagogical-didactic approaches in physical education (Chow et al., 2007), attributable to the ecological-dynamic learning model, based on the complexity and variety of opportunities present in the environments and operational spaces (Newell, 1986), on the interaction of teaching styles and, more generally in the field of motor activities, should be encouraged to solicit multiple and different personalized adaptations of the motor experience.

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4. Conclusions

The Spectrum model of teaching styles (Mosston & Ashworth, 2008), indicates the transition from a teaching in which the teacher expresses the maximum degree of responsibility and decision in the choice of activities and executive and organizational modalities to an approach in which, on the contrary, decisions and motor responses mainly concern the student and the class-group. This interaction of styles (Mosston & Ashworth, 2008) and teaching strategies (Rink, 2002), in fact, allows to: a. promote different ways of acquiring skills and knowledge (i.e. different ways of learning, by reception and by discovery/problem solving); b. foster connections between skills, knowledge, attitudes, functional to motor skills; c. promote the relationships between cognitive-motor and social functions, necessary for interdisciplinary learning; d. personalize the teaching action.

Of all the disciplines in the school curriculum, physical education has the greatest impact on education *corporeality*, i.e. on motor, cognitive, emotional-affective and social development and on mutual relationships in different training contexts. This calls for the implementation of quality educational interventions, intentional, personalized, adapted to the person and controlled on a pedagogical level, considering the explicit and implicit meanings of the experience lived through the body and movement. The role of methodologies is decisive and inescapable.

Bailey (2006) warns that the contribution of motor activities to the development of the educational process will not necessarily be the result of participation, per se, in a motor activity since the effects could arise from the quality of the interactions between students, their teachers and parents. Indeed, not any motor or sports activity contributes to the educational process of students, there is a need for didactic intentionality and significant methodological and evaluative support for each didactic proposal.

In fact, recent scientific evidence (Stodden et al., 2008; Stodden et al., 2021; Opstoel et al., 2020), confirms the mediating role of motor activity and PE, for learning motor skills, the development of cognitive processes and emotional and

social factors, provided that they are intentionally involved and methodologically supported and this constitutes a solicitation for the systematic analysis of *quality* motor experiences [and teaching] and their curricular placement.

The teacher can be a mediator and facilitator of learning, that is, not only through the selection of motor tasks and organizational methods or technological support but, above all, through the choice and variation of teaching styles and strategies that modulate the effects of motor experience. Therefore, a significant temporal portion of the learning units should include motor activities proposed through production styles

The training of physical education teachers should proceed through different and complementary directions, analysis of scientific evidence and the effects of physical exercise, assessment of pupils' needs and relative analysis of the task, analysis of the mediation effects of the factors involved in the activities; analysis of teacher behavior in school and extra-school contexts, to apply and vary different teaching styles. The latter direction is necessary to translate interdisciplinary studies and research into informed teaching practices.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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